Antibody Humanization

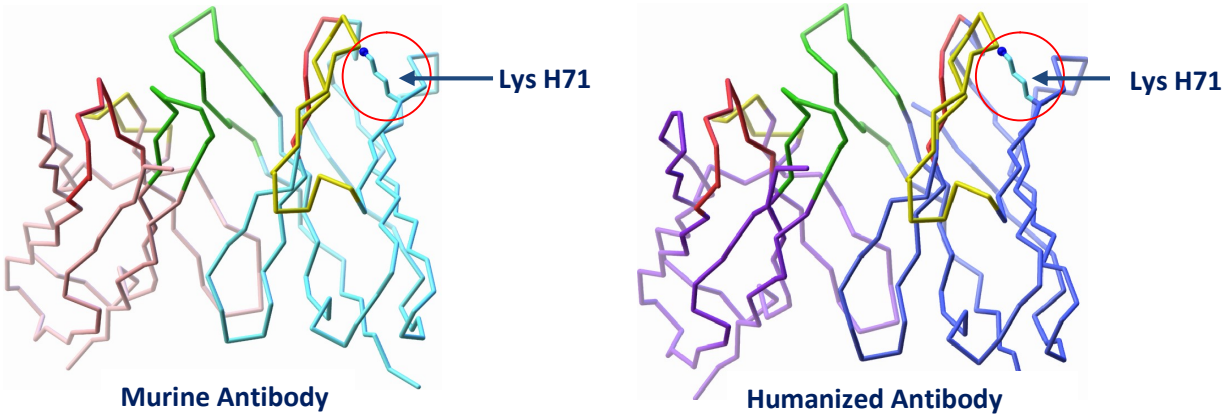
Although fully human antibodies are ideal for therapeutic development, humanized antibodies currently dominate the therapeutic antibody market since, historically, many antibodies were generated from immunized mice. These antibodies were then humanized to minimize immunogenicity and to provide effector functions in humans.

AvantGen Technology Platform	
Attributes	***Performance***
Affinity&Specificity	Humanized antibodies retain antigen binding specificity and often demonstrate improved affinity
Developability	Germline acceptors are selected based on best-fit, canonical structures and thermo-stability to improve the developability of the humanized antibodies
Humanness	The number of residues from the framework of the parental antibodies is minimized in the humanized antibodies to ensure the highest degree of humanness

The most common antibody humanization approach is to graft the 6 CDRs from a murine antibody onto a human antibody acceptor framework. However, such CDR grafting often results in partial or complete loss of affinity of the humanized antibody, and some residues from the murine framework sequences need to be retained to replace the human residues at the corresponding positions (back mutations) in order to restore some of the lost affinity.

AvantGen has extensive antibody modeling and engineering expertise to successfully restore and, if necessary, improve on the binding affinity of the humanized antibody and provide superior developability. Our approach typically requires including just a few murine framework residues in the humanized antibodies to restore antigen binding activity to ensure the highest degree of humanness and the lowest potential for immunogenicity of the humanized antibodies.

Back mutation with a single Lys H71 residue fully restored the binding activity of a humanized antibody



AvantGen, Inc,
10151 Pacific Mesa Blvd., Ste 103, San Diego, CA 92121
www.avantgen.com |Tel 858-768-8107